

Allen Hurlburt

The design concept

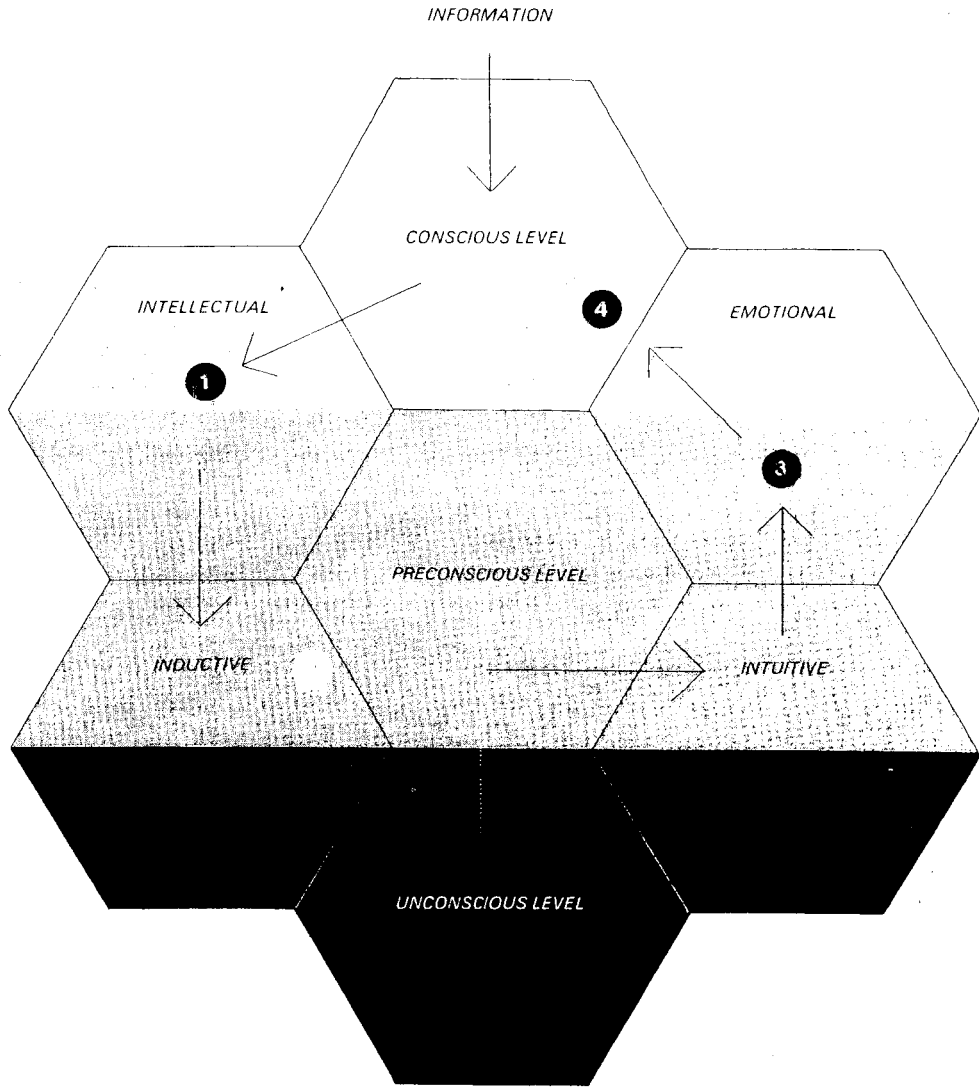
Watson-Guptill Publications, New York

1. The creative process

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A creative individual absorbed in solving a problem will be influenced by a broad range of personality characteristics—accumulated perceptual awareness, a capacity for intellectual analysis, emotional responses, and an innate ability to synthesize the elements of a problem into an original idea. The degree to which both intellect and feeling influence the process will be governed by the personality of the designer and the nature of the problem.

The theory of the structure of the mind first advanced by Sigmund Freud, whose study of the mind roughly paralleled chronologically the early phases of the modern art and design movement, provides us with a good starting point for a discussion of the creative process. In his anatomy of the mind, he identified three distinct levels. He placed the *conscious* level at the top, as the simple receptor of surface information and the mechanism for logical analysis. At the lowest level he placed the *unconscious*, as the deep and hidden area where accumulated experience is often isolated and blocked off by inhibition and internal censorship. The term *subconscious* is often used in popular psychology as a synonym for Freud's unconscious, but because it blurs the distinction between the levels, it is rarely used in scientific studies. Between conscious and unconscious, Freud located a third level that he called the *preconscious*. He considered this level to be more accessible than the unconscious—a bridge between the clear deductive mind and the mysterious unconscious. This interim level is probably the origin of what we call intuition, which is the quick and ready insight that produces ideas without the apparent involvement of our conscious thoughts. Some students of creative thought, including many champions of systematic problem solving, tend to minimize the importance of intuition, but most observers consider it to be a critical part of the creative process.



Anatomy of the mind: This diagram illustrates Sigmund Freud's three major levels of consciousness. At the top is the conscious level, the receptor of information, and at the bottom is the unconscious. In between, Freud locates the preconscious, the level that draws on both of the other levels and provides the source for insights and inspirations. The left side of the diagram illustrates the intellectual processes, and the right side, the emotional response. The circled numbers indicate the four generally accepted steps in the creative process: (1) analysis, (2) incubation, (3) inspiration, and (4) verification.

If the same project were given to a dozen individuals and their progress toward a variety of solutions was observed, a common pattern in their procedures would be apparent. Historically, most observers have accepted four steps as critical parts of the creative process. These are analysis, incubation or remission, inspiration, and verification.

Analysis

This initial step in the creative process is comparatively simple to understand because the activity is centered in the deductive or rational level of the mind. It begins with the conscious absorption of all information given for a project, although the facts provided will rarely be sufficient for a final solution. An experienced

designer will know how to extend his knowledge through additional research. He will then combine the new information with what he already knows to establish a basis for a creative solution.

The research on major problems can be demanding and time consuming, and how this is often accomplished will be covered in more detail in subsequent chapters. There are times when the designer can arrive at a solution with only limited information, if this is coupled with experience on similar problems. It is even possible to produce an adequate design solution to some problems by purely logical analysis in the conscious level of the mind. But the really exciting experience will usually come from the deeper probing that leads to fresh and original vision.

Incubation

The second phase of the creative process involves a calm, detached period in which the factual material that has been analyzed and absorbed into the conscious level of the mind can contact and be influenced by the intuitive forces of the preconscious or inductive level of the mind. The word *incubation* may not be an ideal description of this important phase, but it is meant to describe a period of dormancy in which an idea or a solution is being formed without the aid of deductive thinking. Most scholars who have studied the creative process place great emphasis on turning away from the logical perusal of a problem at this stage in order to utilize the intuitive forces of the preconscious. There is an impressive amount of evidence that innovation and invention frequently occur during periods of intermission or rest when conscious involvement with the problem is at a low ebb.

Inspiration

This phase of the creative process is perhaps the most crucial and also the most difficult to define. It is sometimes called illumination, and it is a direct outgrowth of the period of incubation and remission. This is where insight, imagination, and intuition blend with the preceding rational analysis to create a synthesis and arrive at a design concept. It is this phase that explains why an inventive genius like Thomas A. Edison could take shortcuts in his search for solutions by seeming to guess at the answer. It also suggests why Albert Einstein's "quick and definite vision" often seemed to replace "the slow and painful" process of thought.

Verification

It is never enough that the outcome of the exercise be creative and original. It must also solve the problem in a valid and useful way. The appropriateness of the solution is verified by checking it in terms of original guidelines or information given, research done, and the designer's accumulated knowledge and experience. Wherever possible this phase of assessment is extended to include the response that the finished work generates.

The validity of these four phases of the creative process may be challenged by the designer who has had an idea come to him in a "flash"—often at the very instant that the problem has been stated. In my opinion, this instantaneous creative experience telescopes, rather than bypasses, the four steps. If, for example, the designer has listened long enough to understand the problem and absorb it into the wealth of material that his mind has accumulated, the development of the concept can be remarkably fast. Verification will come later, and there is always the risk that such swiftly achieved concepts will fail the final test.

Lateral thought

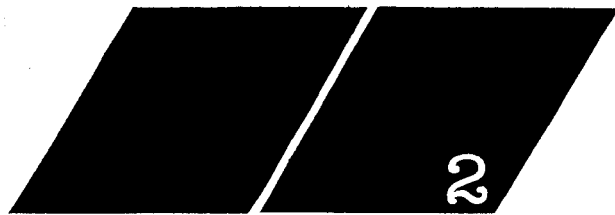
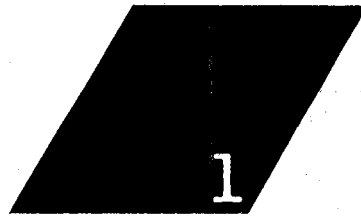
Another provocative theory about the process of creativity has been advanced by Edward de Bono, a noted psychologist and author. In the introduction of his book called *Lateral Thinking* he describes this method as "closely related to insight, creativity, and humor." He continues, "All four processes have the same basis. But whereas insight, creativity, and humor can only be prayed for, lateral thinking is a more deliberate process. It is as definite a way of using the mind as logical thinking—but a very different way."

Perhaps the simplest explanation of Edward de Bono's approach can be found in his account of the problem of digging a better hole: "It is not possible to dig a hole in a different place by digging the same hole deeper and bigger . . . if a hole is in the wrong place, then no amount of digging is going to put it in the right place. Vertical thinking is digging the same hole deeper; lateral thinking is trying again somewhere else."

Many of de Bono's ideas are best expressed in visual terms, and he has applied his theories directly to many design problems. The illustration on the following page demonstrates how logical progression led to a bland and predictable result, while a change of direction created a more imaginative and less expected result.

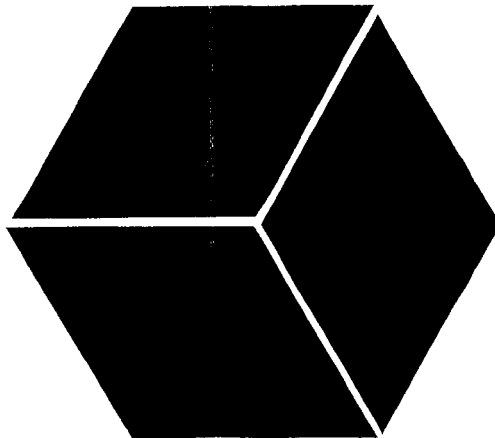
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Lateral thinking: *This theory of creative action is graphically illustrated in the problem at the right, adapted from Edward de Bono's book Lateral Thinking (Harper & Row). In steps one and two, the parallelograms fit together in a logical way, but when the same logic is followed in step three, the result is predictable and bland. A more interesting and more creative solution results when the previous logic is set aside for a fresh and lateral alternative.*



A cliché results from logical progression.

Lateral thinking produces a better solution.



Tangram: *The visual challenge of this ancient Chinese game appeals to the play instinct and can provide visual stimulation to the designer. In Tangram, a tile is divided into seven pieces that can be creatively arranged to form hundreds of pictures of animate and inanimate objects.*



Play instinct

An important part of the creative process is linked to our natural instinct for play—an interest that is most apparent during childhood. Play has been called “the art of childhood.” For most children play is a part of the learning process, and for many it is an early training ground for creative thought.

In their preverbal concepts, children filter and record their perceptual experience. They are aware of color and form and link this awareness to their already developed sensory and motor skills by grasping objects with pleasant associations and rejecting those that are disturbing. This visual and tactile exploration of the surrounding world leads gradually to the interpretation of it in terms of space, time, and personal relationships. This is the transition from playful modes to more objective appraisal.

This new objectivity is enhanced by an increased capacity to verbalize experience, but the magic of play returns and becomes a vital part of childhood. It is here that imagination and creative response can be observed, for when children turn to play, they often set aside the objective and verbal for the intuitive and visual.

It is this quality of the unexpected that relates lateral thinking to the turning of an idea with the double meaning we associate with jokes, puns, and illusions.